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PROBLEMS FOR SOLUTION.

ALGEBRA.

189. **Proposed by S. F. NORRIS, Professor of Astronomy and Mathematics, Baltimore City College, Baltimore, Md.**

$$\text{Solve } 3x-y=xy-x^2,\ \sqrt[3]{y}=\sqrt{\frac{2y-x}{2}}.$$

GEOMETRY.

212. **Proposed by B. F. FINKEL, A.M., M.Sc., Professor of Mathematics and Physics, Drury College, Springfield, Mo.**

Given two triangles ABC and $A'B'C'$ lying in the same plane. The side $B'C'$ cuts the sides AC, BC, and AB in the points I, H, and G, respectively; the side $A'B'$ cuts the same sides, AC, BC, and AB in D, F, and E, respectively; and $A'C'$ cuts AC, BC, and AB in M, L, and K, respectively. Prove that

$$(DA'.EA'.A'F)\ (GB'.HB'.B'I)\ (MC'.LC'.C'K)$$
$$=-(KA'.A'L.A'M)(FB'.B'E.B'D)\ (IC'.C'H.C'G).$$

213. **Proposed by H. F. MacNEISH, A. B., Instructor in Mathematics, University High School, Chicago, Ill.**

Construct an equilateral triangle which shall have its vertices in three given parallel lines.

214. **Proposed by H. F. MacNEISH, A. B., Instructor in Mathematics, University High School, Chicago, Ill.**

Inscribe in a given circle a triangle whose sides shall pass through three given points.

CALCULUS.

173. **Proposed by J. E. SANDERS, Hackney O.**

Find the area of the greatest ellipse that can be inscribed in the quadrant of a given circle.

MECHANICS.

164. **Proposed by W. J. GREENSTREET, M. A., Editor of The Mathematical Gazette, Stroud, England.**

P balances W on a system of n movable pulleys of equal weight, each hanging by a separate string. If P is moved find the maximum acceleration of W.

AVERAGE AND PROBABILITY.

150. **Proposed by F. P. MATZ, Sc. D., Ph. D., Professor of Mathematics and Astronomy in Defiance College, Defiance, O.**

If the length of a circular arc be b and the radius vary uniformly, what is the averarea of all the segments possible?

151. Proposed by **L. E. DICKSON, Ph. D.,** Assistant Professor of Mathematics, The University of Chicago.

If A and B play tennis together, find the probability that A will win, given that a is the probability that A will win a given point and b the the probability that B will win the point.

NOTES.

The index for Vol. X will be mailed with the opening number for 1904.

Mr. C. Gilman has been appointed Instructor in Mathematics and Surveying at Harvard University.

Mr. Walter J. Risley has been appointed Instructor in Mathematics at the Armour Institute, Chicago.

Mr. C. R. Burger has been elected Assistant Professor of Mathematics at the Colorado School of Mines.

Dr. H. E. Hawkes has been promoted to an Assistant Professorship of Mathematics at Yale University.

Professor R. J. Aley, of the University of Indiana, has been elected to the editorship of the *Educator-Journal.*

Professor F. Anderegg, of Oberlin College, is away on leave of absence. He is spending the year in study and sightseeing in his native country, Switzerland.

Dr. Charles H. Ashton, previously Instructor in Mathematics at Harvard University, has been appointed Assistant Professor of Mathematics at the University of Kansas.

The Chicago Section of the American Mathematical Society will meet at St. Louis, Mo., during the Christmas recess.

The San Francisco Section of the American Mathematical Society met at the University of California on December 19, 1903.

The Central Association of Science and Mathematics Teachers held its annual meeting in Chicago on November 27 and 28, 1903.

An organization meeting of Teachers of Mathematics in ths Middle States and Maryland was held in affiliation with the Association of Colleges and Preparatory Schools of the Middle States and Maryland at Columbia University, on Saturday, November 28th, 1903, in Milbank Memorial Chapel, Teachers College.

Any of our subscribers wishing to correspond with Mr. Finkel on matters of business pertaining to the MONTHLY should send such correspondence directly to him at 204 St. Marks Square, Philadelphia, Pa. All subscriptions and requests for sample copies, etc., should be sent to W. C. Calland, Treasurer, Drury College, Springfield, Mo.